Remarks/Arguments

Reconsideration of this application is requested.

Specification

The title is objected to as not descriptive. In response, the title is amended to "Dynamo-Electric Machine with Stator Yoke and Teeth Configured to Reduce Eddy Current Caused by Leaked Magnetic Flux", which is clearly indicative of the invention to which the claims are directed.

The Action also objects to the format and length of the abstract. In response, the abstract is amended to be of proper length and format.

Drawings

The Action objects to the drawings under 37 CFR 1.83(a) and asserts that they do not show the claimed feature "the end portion of the tooth which opposes the magnet when the coil is energized is smaller than the cross-sectional area perpendicular to the line of magnetic force at the plurality of teeth disposed in the coil" (quoting the Examiner at page 2 of the Office Action).

Applicant assumes that the Action is referring to the feature of claims 4, 7 and 17 that the cross-sectional area of the magnet-opposed end portion of the tooth is smaller than the cross-sectional area of the portion of the tooth disposed in the coil (the cross-sectional areas being perpendicular to the lines of magnetic force generated when the coil is energized). In this regard, applicant points out that support for this feature is found in applicant's specification at page 37, lines 8-12, which states, with reference to FIGS. 9A-9B:

> *...However, the present invention is not limited thereto, and the area S7 and the width W7 of the magnet-opposed end portion 108 disposed outside the coil 62 may be smaller than the area and width of the portion 107 to be disposed within the coil...*

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Applicant reserves the right to amend the drawings to be consistent with this disclosure, as is permitted under USPTO rules. For the time being, however, claims 4, 7 and 17 are amended to recite:

> *...wherein the cross-sectional area perpendicular to the line of magnetic force generated at the plurality of teeth at the magnet-opposed end portion of the tooth which opposes the magnet when the coil is energized is equal to the cross-sectional area perpendicular to the line of magnetic force at the plurality of teeth disposed in the coil...*

Support for this feature is clearly found in FIGS. 9A, 9B and 10A, as well as in the specification, for example, at page 37, lines 4-8. In view of this amendment to the claims, the objections to the drawings should be withdrawn.

Claim Status

Claims 1-20 were previously presented. Claims 1, 4, 7, 8, 10, 11, 15 and 17 are amended. Claim 2 is canceled without prejudice. Claims 1 and 3-20 are now pending.

Claim Rejections – 35 USC 102(e) - Naito

Claims 1-3, 5, 6, 11-16, 18 and 20 are rejected under 35 USC 102(e) as anticipated by Naito (US 7,173,357).

In regards to the rejections in reliance on Naito, applicant first notes that this application claims priority to Japanese application no. 2002-237336, filed in Japan on August 16, 2002. Naito is a national phase application of PCT/JP02/12500, having a PCT filing date of November 29, 2002, which is later than applicant's Japanese priority date of August 16, 2002. Moreover, because PCT/JP02/12500 was not published in the English language, Naito is not effective as a reference until its PCT publication date of June 5, 2003.

Thus, Naito could be removed as a prior art reference by filing a verified English translation of the certified copy of applicant's priority application JP 2002-237336. Therefore, applicant does not admit the prior art effect of Naito, and

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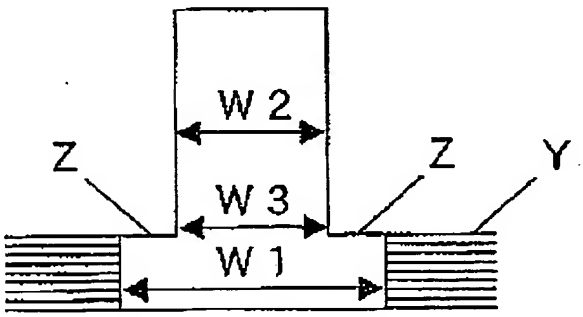
reserves the right to perfect its claim to priority and remove Naito as an effective prior art reference. Because the amendments to independent claims 1 and 11 in any event distinguish over Naito, applicant has not yet taken this action, but reserves its right to do so in the future.

Independent claims 1 and 11 are amended to recite that:

> *...a height of a circumference of the opening of the yoke is equal to the height of the shoulder of the part of the tooth inserted into the opening...*

Thus, with respect to the embodiment of FIG. 9B, for example, which is reproduced in part below, the circumference of the opening of the yoke where the tooth is inserted, identified as "Y", and the shoulder part of the first part of the tooth, identified as "Z", have the same height. Claims 1 and 11 also recite that, as shown below, the cross-sectional area of the portion of the tooth inserted into the opening is larger than a cross-sectional area of the portion of the tooth stored in the coil.



In FIG. 20(C) of Naito, by contrast, which the Action relies on in rejecting claims 1 and 11 and which is reproduced below, the shoulder of the portion 24a of tooth 24 disposed in yoke 23 is clearly not at the same height as the circumference of the opening of yoke 23. Thus, as the space "Q" between yoke 23 and the portion of tooth 24 above the shoulder is narrow, magnetic flux will drop to yoke 23 as

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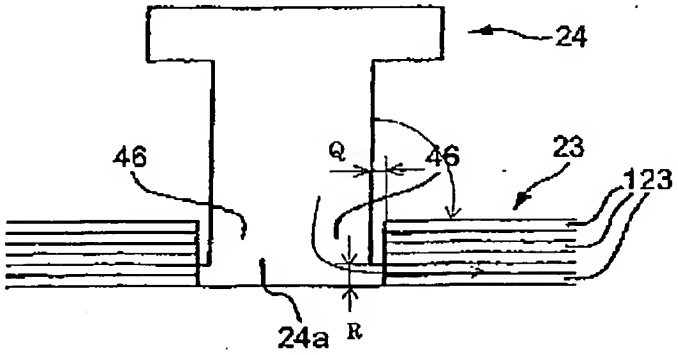
shown by the arrow in the drawing below. In this regard, if the space "Q" is widened, magnetic flux will not flow sufficiently to the narrower height "R" of the shoulder portion.



In applicant's configuration, by contrast, the height of the circumference of the opening of the yoke and the height of the shoulder inserted into the opening are the same, and these problems are thereby avoided. This, in combination with the cross-sectional area of the portion of the tooth inserted into the opening being larger than a cross-sectional area of the portion of the tooth stored in the coil, leads to a significant and advantageous reduction of eddy current caused by leakage of magnetic flux.

Since Naito does not disclose each and every feature of claims 1 and 11, it cannot anticipate those claims or claims 3, 5, 6, 12-16, 18 and 20 dependent thereon. The rejections under 35 USC 102(e) should accordingly be withdrawn.

Claim Rejections – 35 USC 103(a) – Petersen/Forbes

Claims 1-3, 5, 6, 11-16, 18 and 20 are further rejected under 35 USC 103(a) as obvious over Petersen (US 4,745,345) in view of Forbes (US 4,712,035). In response, applicant traverses the rejections, and submits that independent claims 1 and 11 distinguish over Petersen and Forbes for the same reasons as discussed with respect to Naito.

Petersen is cited as disclosing, in sum, a tooth disposed on a yoke and opposing a magnet at a predetermined gap (see pages 5-6 of the Action, citing FIGS.

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6 and 8 of Petersen). The Action acknowledges that Petersen fails to disclose that a cross-sectional area of the portion of the tooth inserted into an opening of the yoke is greater than a cross-sectional area of the portion of the tooth stored in the coil. Moreover, applicant further notes that Petersen does not disclose that a height of a circumference of an opening of the yoke and a height of a shoulder of the portion of the tooth inserted into the opening are the same, as is now required by claims 1 and 11, as amended.

The Action asserts that Forbes remedies the noted deficiency of Petersen, citing FIGS. 16 and 21. Applicant disagrees, especially in view of the amendments to claims 1 and 11. In FIG. 16 of Forbes, tooth ("pole piece") 153 is not inserted into an opening of yoke 143, as is required by claims 1 and 11. Rather, an opening 159 formed on the bottom of tooth 153 receives a mating projection 141r formed on yoke 143. Thus, yoke 143 and tooth 153 are not configured as is required by claims 1 and 11 and, since yoke 143 has no opening that receives a portion of tooth 153,, it is not possible that a circumference of an opening of yoke 143 is equal to a height of the shoulder of tooth 153 received in the opening of yoke 143. Instead, as shown in FIG. 17, the shoulder portion of tooth 153 (top of portion 157) is higher than any part of yoke 143.

In FIGS. 19-21 of Forbes, a portion 157 of a tooth 187 is received between projections 177r of yoke 181. However, even if the space between projections 177r were considered an opening, it is clear from FIG. 20 that the height of shoulder portion 157 of tooth 187 is higher than the height of projections 177r.

Moreover, applicant further notes that the lamination directions of Forbes' yoke and tooth are the same, in contrast to applicant's claimed invention in which the lamination direction of the yoke is perpendicular to that of the tooth.

Since Petersen and Forbes do not disclose each and every feature of claims 1 and 11, claims 1 and 11 and claims 3, 5, 6, 12-16, 18 and 20 dependent thereon are not obvious over Petersen in view of Forbes. The rejections of claims 1-3, 5, 6, 11-16, 18 and 20 under 35 USC 103(a) should accordingly be withdrawn.

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Claim Rejections – 35 USC 103(a) – Petersen/Forbes/Kilbourne

Claims 4, 7-10, 17 and 19 are rejected under 35 USC 103(a) as obvious over Petersen in view of Forbes and Kilbourne (US 2,236,291). The Action acknowledges that Petersen and Forbes lack disclosure that a cross-section of a magnet-opposed portion of a tooth is smaller than that of a coil enclosed area of the tooth, but asserts that such a teaching is provided by Kilbourne.

As discussed above, claims 4, 7 and 17 have been amended to recite that a cross-section of a magnet-opposed portion of a tooth is equal to that of a coil enclosed area of the tooth. Claims 8-10 and 19 depend, respectively, from claims 7 and 17. Moreover, Kilbourne does not remedy the deficiency of the other references of record to show a portion of a tooth disposed in the opening of the yoke as having a shoulder with a same height as that of the circumference of the yoke opening. This limitation is present in claims 4 and 17, by virtue of their dependence from claims 1 and 11, and has been added by amendment to claim 7, and is thus present in claims 8-10 and 19 depending therefrom.

Finally, with respect to Kilbourne, applicant notes that because of its configuration, magnetic flux will drop upon frame 10, and inducted current coming from the leaking magnetic flux will generate upon frame 10. This is in direct contravention to the advantages provided by applicant's claimed invention.

For these reasons, claims 4, 7-10, 17 and 19 are not obvious over Petersen in view of Forbes and Kilbourne, and their rejections under 35 USC 103(a) should be withdrawn.

Conclusion

This application is now in condition for allowance. The Examiner is invited to contact the undersigned to resolve any issues that remain after consideration and entry of this amendment.

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Any fees due with this response may be charged to our Deposit Account No. 50-1314.

Respectfully submitted,
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Date: December 11, 2007

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